MASTER OF SCIENCE
IN
DEFENSE ANALYSIS

MILITARY RESPONSES TO STATE-SPONSORED TERRORISM:
RE-THINKING DETERRENCE AND COERCION THEORY

Timothy E. Bellon-Captain, United States Army
B.A., Concordia College, 1989
Master of Science in Defense Analysis-December 1999
Advisors: John Arquilla, Special Operations Academic Group
Second Reader: David C. Tucker, Command, Control, Communications, Computer, and Intelligence Academic Group

The face of conflict is changing. The breakup of the former Soviet Union has changed the balance of power from a bi-polar world to a uni-polar one. This change in the world's power structure has presented the United States with new challenges. The purpose of this thesis is to explore one of these challenges, state-sponsored terrorism, and the range of military responses that might be used to deter states from sponsoring terrorism or coercing states into ceasing their sponsorship. This thesis uses conventional deterrence and coercion theory as well as comparative case studies to analyze the utility of deterrence and coercion against state-sponsored terrorism. In doing so a framework that can be applied to state sponsors of terrorism was developed to determine if a strategy of deterrence or coercion could alter a state's behavior. The findings of this thesis suggest that a determined coercive strategy is more likely to work against state-sponsored terrorism than a strategy of deterrence. Finally, the thesis provides a model, a taxonomy of coercion that recommends using lethal and non-lethal options in overt and covert operations as the means to modify the behavior of states that sponsor terrorism.

DoD KEY TECHNOLOGY AREAS: Command, Control, and Communications, Other (Special Operations)

KEYWORDS: State-Sponsored Terrorism, Deterrence, Coercion, Rational Choice Theory, Prospect Theory, Operation El Dorado Canyon, Israeli Counterterrorism, Operation Infinite Reach, Counterterrorism (CT)

NAVAL SPECIAL WARFARE PREPAREDNESS FOR OPERATIONS IN A CHEMICAL AND BIOLOGICAL ENVIRONMENT

Peter D. Berardi-Lieutenant, United States Navy
B.S., University of Vermont, 1985
Master of Science in Defense Analysis-December 1999
and
Paul G. Giberson-Lieutenant, United States Navy
B.A., University of San Diego, 1992
Master of Science in Defense Analysis-December 1999
Advisor: Gordon H. McCormick, Special Operations Academic Group
Second Reader: David C. Tucker, Command, Control, Communications, Computers, and Intelligence Academic Group

This thesis will examine both the current chemical and biological warfare threat to Special Operations Forces. It will address, in particular, issues regarding Naval Special Warfare (NSW) CBR doctrines and training to meet this threat. To successfully address chemical and biological threats, NSW requires a comprehensive analysis of the chemical and biological environment, a unified doctrine that establishes a relevant training regime, and the manpower and equipment necessary to successfully prosecute missions within this environment. These threats have grown as the barriers to entry for the chemical and biological race have diminished and the incentives to develop chemical and biological weapons have increased. We define the gap between the threat and NSW readiness as a *Policy Lag*. Policy lag manifests itself in inadequate doctrine, manning, and training. Naval Special Warfare can close this existing gap with a determined effort to develop a training, organization, and equipment plan to conduct special operations in a chemical and biological environment.

DoD KEY TECHNOLOGY AREA: Chemical and Biological Defense

KEYWORDS: Naval Special Warfare, Biological and Chemical Defense, Preparedness

THE AFRICAN CRISIS RESPONSE INITIATIVE: COMMAND AND CONTROL OF A MULTI-NATIONAL FORCE

Scott E. Brower-Major, United States Army
B.S., United States Military Academy, 1989
Master of Science in Defense Analysis-December 1999
Advisor: Anna Simons, Special Operations Academic Group
Second Reader: David C. Tucker, Command, Control, Commmunications, Computers, and Intelligence Academic Group

As the lone remaining superpower, the United States is often viewed as the world's police force and expected to help restore order wherever problems arise. But as the size of the United States' military continues to shrink and the number of regional conflicts continues to grow, the United States finds itself in a precarious position. How can it help attain regional stability throughout the world with an ever-shrinking military? The African Crisis Response Initiative (ACRI) is one tool being used in an effort to attain this goal in Africa. The overall aim of the ACRI is to train a division's worth of battalions in the necessary tasks to conduct limited Peacekeeping Operations (PKOs) and Humanitarian Assistance Operations (HUMROs). The hope is that with this capability, African nations will be capable of solving their own problems with only minimal assistance being required of the United States. The purpose of this thesis is to identify critical factors and considerations for command and control of a multi-national force in Africa, participating in either PKOs or HUMROs. This thesis will examine recent conflicts in Africa, what lessons have been learned by peacekeeping forces used there, U.S. command and control doctrine, and what is currently being done with ACRI. The thesis will conclude with recommendations for what must be done on both the international and brigade level in the area of command and control, in order to provide the necessary framework to make ACRI successful.

DoD KEY TECHNOLOGY AREA: Other (Special Operations)

KEYWORDS: African Crisis Response Initiative, Command and Control, Peacekeeping Operations, Humanitarian Operations

THE RANGER REGIMENTAL RECONNAISSANCE DETACHMENT: THE ROLE OF TECHNOLOGY IN A HUMINT-BASED ORGANIZATION

Gerald H. Compton-Major, United States Army
B.S., California State University, 1988
Master of Science in Defense Analysis-December 1999
Advisor: John Arquilla, Information Warfare Academic Group
Second Reader: Eric Jansen, Department of Systems Management

This thesis examines the impact of technology on the capabilities of the Regimental Reconnaissance Detachment (RRD) and looks at how the unit's capabilities can be enhanced, at reasonable cost. The thesis focuses on three current or emerging technologies, consisting of: remote battlefield sensing systems; a Signals Intelligence acquisition platform; and the use of tactical Unmanned Aerial Vehicles (UAVs). This thesis also examines the current capabilities and shortfalls of the RRD, and examines what the above mentioned systems can provide as "stand-alone" technologies. The thesis then considers the likely impact on the unit once these technologies are used in conjunction with the unit's HUMINT capabilities, and whether the RRD's intelligence acquisition capabilities are enhanced. A cost benefit analysis will also be done, in addition to looking at how the unit may need to be reorganized in order to maximize these new capabilities and facilitate the analysis and integration of this new information into the intelligence and targeting cycle. The implication of this research is that the Ranger Regiment needs to have a much more robust, organic, intelligence acquisition organization in order to meet the challenges of the changing, high-risk global environment that the Regiment will find itself operating in. The findings of the analysis show how integrating current and emerging technologies could increase the intelligence acquisition capabilities of RRD and allow RRD, and the Ranger Regiment, to continue to maintains its lead as the US military's premier strike force.

DoD KEY TECHNOLOGY AREAS: Air Vehicles, Electronics Warfare, Sensors, Other (Special Operations Forces)

KEYWORDS: Regimental Reconnaissance Detachment, Ranger Ready Force, Human Intelligence (HUMINT), Special Operations Forces, Remotely Monitored Battlefield Systems, Signals Intelligence, Unmanned Aerial Vehicles

MILITARY INNOVATION: SOURCES OF CHANGE FOR UNITED STATES SPECIAL OPERATIONS FORCES (SOF)

Jon F. Giese-Major, United States Air Force
B.S., United States Air Force Academy, 1986
Master of Science in Defense Analysis-December 1999
Advisor: David C. Tucker, Command, Control, Communications, Computers, and Intelligence Academic Group
Second Reader: Susan P. Hocevar, Department of Systems Management

Today, in the post-Cold War era, each of the U.S. military services and U.S. Special Operations Command (USSOCOM) realizes that in order to remain relevant it must be able to innovate and change. This thesis defines military innovation as a change in the stated roles or missions of the organization to solve current or projected military challenges or threats as defined by the national strategy. The thesis surveys three contending theories of military innovation. It identifies elements from each and develops a hypothesis to explain innovation in U.S. Special Operations Forces (SOF). This hypothesis is then tested against three instances where U.S. SOF accepted and developed the new missions of counterinsurgency, counterterrorism, and counterproliferation. The study concludes that the variables of SOF culture, changes in the security environment, civilian intervention, and military leaders have combined to cause military innovation in U. S. SOF. Of these variables, military leaders, who control of resources and can provide

promotion pathways to junior officers, is necessary for innovation. Recommendations for USSOCOM are then drawn from these conclusions.

DoD KEY TECHNOLOGY AREAS: Chemical and Biological Defense, Command, Control, and Communications, Manpower, Personnel, and Training

KEYWORDS: Special Operations, Military Innovation, Counterinsurgency, Counterterrorism, Counterproliferation

NON-LETHAL WEAPONS IN NONCOMBATANT EVACUATION OPERATIONS

Jerry J. Kung-Captain, United States Air Force
B.A., University of California, 1992
Master of Science in Defense Analysis-December 1999
Advisor: David C. Tucker, Command, Control, Communications, Computers, and Intelligence Academic Group
Second Reader: Xavier K. Maruyama, Department of Physics

This thesis examines the utility of non-lethal weapons for mitigating risks in demanding tactical scenarios, specifically crowd control. Noncombatant evacuation operations (NEOs) are conducted when a host government becomes unstable. A NEO force's failure to manage the potential for local violence against the mission can lead to negative consequences for U.S. foreign policy and international relations. Therefore, escalation in the threat level must be avoided because mission success could be jeopardized. Along with restrictive rules of engagement, these considerations discourage the use of deadly force. Thus, non-lethal weapons have a role in NEOs.

One of the challenges in NEOs is crowd control. Crowds have the potential for violence. Left unchecked, they can endanger the NEO mission. This thesis finds that a non-lethal capability is essential for responding to these threats. The thesis' methodology produces a short list of suitable non-lethal crowd control weapons for deployment in NEOs. In addition, the arguments for non-lethality in NEOs can be extended to other operations other than war, and thus increase the utility of non-lethal weapons in the US military inventory.

DoD KEY TECHNOLOGY AREA: Other (Non-Lethal Weapons)

KEYWORDS: Noncombatant Evacuation Operations, Crowd Control, Crowd Behavior, Non-Lethal Weapons

THE UTILITY OF MAKING FUNCTIONAL AREA 39 A BRANCH

Francis P. Landy-Major, United States Army
B.S., Georgia Southern College, 1985
Master of Science in Defense Analysis-December 1999
and
Rene B. Porras-Major, United States Army
B.S., Tarleton State University, 1988
Master of Science in Defense Analysis-December 1999
Advisor: Gordon H. McCormick, Special Operations Academic Group
Second Reader: George Lober, Special Operations Academic Group

The purpose of this thesis is to suggest that it is time for Functional Area 39 (Psychological Operations/ Civil Affairs) to become a branch. The hope is to stimulate critical thinking on this issue and illustrate the demands that are presently being placed on the FA 39 community by utilizing the Spectrum of Conflict as a frame of reference.

As experienced officers with a vested interest in the future of FA 39, we believe it is important to the future of the Functional Area to take a critical look at where it is and where it appears to be going. The present degree of reliance on the reserves, argued, is a sub-optimal long-term solution.

Utilizing the Spectrum of Conflict as a model, it is illustrated that conflict trends over the past twenty years show a significantly higher incidence of sub-state conflict, with no change in the foreseeable future. This suggests an increased need for soldiers with Special Operations Forces (SOF) related skills. By examining possible alternatives, we provide arguments and illustrate the merits of change.

The findings of the analysis lead to the recommendation that FA 39 become a branch within the Army. While it may appear that the organization is healthy, the threat environment and increased OPTEMPO necessitate a need for change.

DoD KEY TECHNOLOGY AREA: Other (Special Operations Forces)

KEYWORDS: Functional Area 39, Psychological Operations (PSYOP), Civil Affairs (CA), Spectrum of Conflict, Special Operations Forces, Branch Designation, OPMS XXI, Low Intensity Conflict, PSYOP and CA Reserve Components

DEFINING CRITICAL TECHNOLOGIES FOR SPECIAL OPERATIONS

Lawrence W. McLaughlin-Major, United States Air Force
B.S., United States Air Force Academy, 1988
Master of Science in Defense Analysis-December 1999
Advisors: Gordon H. McCormick, Special Operations Academic Group
Anna Simons, Special Operations Academic Group

As the military forces of the United States continue to draw down, Special Operations Forces (SOF) are playing a greater role across the entire spectrum of conflict. In order to maintain its relative advantage, SOF is using technology as a means to leverage limited resources – sometimes to the point that mission accomplishment depends critically on a technology's availability. Adversaries will attempt to challenge our advantages. Whether Special Operations Forces are prepared to operate in a degraded environment could determine success or failure.

This thesis examines the issue of *critical* technologies in special operations. *Critical* technologies are defined according to three variables – level of dependence, degree of vulnerability, and substitutability. By examining technologies against these three variables, SOF can gain a better understanding of the impact to SOF operations if a technical capability is lost. Three technologies are examined to illustrate the model – the use of Radar in the Battle of Britain, the Global Positioning System, and UHF Satellite Communications.

By applying the model to actual cases, this thesis hopes to encourage SOF decision-makers to closely examine our growing reliance on vulnerable technologies as a force multiplier and provide recommendations to prevent undue reliance on those technologies.

DoD KEY TECHNOLOGY AREAS: Battlespace Environments, Command, Control, and Communications, Electronics

KEYWORDS: Technology, Special Operations, GPS, Satellite Communications

CYBERTERROR PROFILING (U)

William J. Nelson-Major, United States Air Force
B.S., United States Air Force Academy, 1986
Master of Science in Defense Analysis-December 1999
and
Gregory J. Gagnon-Captain, United States Air Force
B.A., Saint Michael's College, 1994
Master of Science in Defense Analysis-December 1999
Advisor: John Arquilla, Information Warfare Academic Group
Second Reader: Dan C. Boger, Command, Control, Communications, Computers, and Intelligence Academic Group

The reports of various commissions, as well as Y2K concerns, have all brought about the perception the United States has become increasingly vulnerable to an information technology mishap or a deliberate attack of such cascading effect as to paralyze critical economic or military information infrastructures. Many have theorized that terrorist groups will acquire an information warfare capability to seize this opportunity to exploit an "information chink" in America's defensive armor. This research applies a model created in the study, "Cyberterror: Prospects and Implications" to five active terrorist groups and determines each group's relative incentives and disincentives for pursuing cyberterror.

DoD KEY TECHNOLOGY AREAS: Battlespace Environments, Computing and Software, Electronic Warfare

KEYWORDS: Cyberterror, CNA, Computer Network Attack, Computer Security, Information Warfare, Information Operations, Special Operations, Hacker, Terrorist, Terrorism